Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-7 (canceled)

8 (currently amended): A method for identifying a compound that modulates cellular proliferation or chemosensitivity, the method comprising the steps of[[:]]

~~(i)~~ contacting the compound with a meiotic recombination 11 (MRE11) polypeptide wherein the polypeptide has at least 95% amino acid sequence identity to SEQ ID NO:2 and has nuclease activity[[;]] and determining a functional effect of said compound by measuring nuclease activity of the MRE11 polypeptide,

~~(ii) determining a functional effect of the compound upon the MRE11 polypeptide; and~~

~~(iii) determining the chemical or phenotypic effect of the compound upon a cell comprising an MRE11 polypeptide, thereby identifying a~~ wherein an effect of said compound on the nuclease activity of said MRE11 polypeptide indicates that said compound ~~that~~ modulates cellular proliferation or chemosensitivity.

9-13 (canceled)

14 (previously presented): The method of claim 8, wherein the MRE11 polypeptide is expressed in a eukaryotic host cell.

15-22 (canceled)

23 (original): The method of claim 8, wherein modulation is inhibition of cellular proliferation.

24 (original): The method of claim 8, wherein modulation is inhibition of cancer cell proliferation.

25 (original): The method of claim 8, wherein modulation is activating sensitivity to chemotherapeutic reagents.

26 (original): The method of claim 8, wherein modulation is activating sensitivity of cancer cells to chemotherapeutic reagents.

27 (original): The method of claim 14, wherein the host cell is a cancer cell.

28 (original): The method of claim 27, wherein the cancer cell is a breast, prostate, colon, or lung cancer cell.

29 (original): The method of claim 27, wherein the cancer cell is a transformed cell line.

30 (original): The method of claim 29, wherein the transformed cell line is PC3, HI299, MDA-MB-231, MCF7, A549, or HeLa.

31 (previously presented): The method of claim 27, wherein the cancer cell is a p53 null or mutant cell.

32 (previously presented): The method of claim 27, wherein the cancer cell is a p53 wild-type cell.

33 (original): The method of claim 27, wherein the cancer cell is treated with bleomycin or etoposide.

34 (original): The method of claim 8, wherein the polypeptide is recombinant.

35 (original): The method of claim 8, wherein the polypeptide is encoded by a nucleic acid having a sequence of SEQ ID NO:1.

36 (original): The method of claim 8, wherein the compound is an antibody.

37 (original): The method of claim 8, wherein the compound is an antisense molecule.

38 (original): The method of claim 8, wherein the compound is a small organic molecule.

39 (original): The method of claim 8, wherein the compound is a peptide.

40 (original): The method of claim 39, wherein the peptide is circular.

41-52 (canceled)

53 (previously presented): The method of claim 8, wherein the MRE11 polypeptide has an amino acid sequence of SEQ ID NO:2.

54 (previously presented): The method of claim 8, wherein the MRE11 polypeptide is encoded by a nucleic acid sequence having at least 95% nucleic acid sequence identity to SEQ ID NO:1.